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EXAMINER

DU, THUAN N

ART UNIT PAPER NUMBER

2116

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/802,659

Applicant(s)

COHEN ET AL.

Examiner

Thuan N. Du

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. Claims 1-12 are presented for examination.

Claim Objections

2. Claims 3 and 10 are objected to because of the following informalities:

In claim 3, lines 6-7, the connector should disconnect the hub from the host in response to the first signal and connect the hub to the host in response to the second signal. Appropriate correction is required. For further examination, the examiner considers claim 3 recites “a connector coupled with the host, the attach/removal detection logic and the USB hub, the connector for disconnecting the USB hub from the host in response to the first signal and for connecting the USB hub to the host in response to the second signal.”

In claim 10, lines 8-9, the connector should disconnect the hub from the host in response to the first signal and connect the hub to the host in response to the second signal. Appropriate correction is required. For further examination, the examiner considers claim 10 recites “using a connector coupled with the host, the attach/removal detection logic and the USB hub to disconnect the USB hub from the host in response to the first signal and to connect the USB hub to the host in response to the second signal.”

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luke et al. [Luke] (U.S. Patent No. 6,279,060).

5. **Regarding claim 1**, Luke teaches a system substantially as claimed including a host (host computer), the system comprising:

a Universal Serial Bus (USB) hub [hub 132 in Fig. 13; hub 156 in Fig. 14];

at least one USB connector coupled with the USB hub [Fig. 14];

attach/removal detection logic (circuits 96 and 102 included in USB bridge) coupled with the USB hub [Figs. 4, 13, 14], the attach/removal detection logic for determining whether a peripheral device is connected to the USB bridge [col. 5, lines 19-22, 31-37, 40-45], logically decoupling the bridge from the host or an upstream USB hub if the peripheral device is not connected [col. 4, lines 55-57, 62-67; col. 5, lines 9-16] and logically coupling the USB bridge to the host or the upstream USB hub if the peripheral device is connected [col. 4, lines 55-57; col. 5, lines 16-18].

Luke teaches the USB bridge is logically coupled/decoupled to/from the host or the upstream USB hub at its upstream USB cable. Luke does not explicitly teach the USB hub can be logically coupled/decoupled to/from the host as claimed.

One of ordinary skill in the art would have recognized that Luke's USB bridge device is a device for connecting other device(s) to the host [Figs. 14, 15]. The USB bridge is connected to the host or upstream USB hub by a USB cable [Figs. 12-15]. USB hub is also a device for connecting other device(s) to the host, and USB hub is also connected to the host by USB cable.

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Therefore, it would have been obvious to one of ordinary skill in the art to modify the teaching of Luke to be applied to USB hub because Luke's USB bridge device functions similar to the USB hub. Logically decoupling the USB hub from the host when no device connected to the USB hub would increase the flexibility of the system by not only saving power for the system but also saving bus resources of the system used to enumerate the USB hub [col. 2, lines 19-20].

6. **Regarding claim 2**, Luke teaches that the attach/removal detection logic (circuits 96 and 102 included in USB bridge) is coupled with the host [Figs. 4, 12] and wherein the attach/removal detection logic disconnects the USB bridge from the host if the peripheral device is not connected to the USB bridge connector [Fig. 12; col. 4, lines 55-57, 62-67; col. 5, lines 9-16].

Luke teaches the USB bridge is disconnected from the host or the upstream USB hub at its upstream USB cable. Luke does not explicitly teach the USB hub can be disconnected from the host as claimed.

One of ordinary skill in the art would have recognized that Luke's USB bridge device is a device for connecting other device(s) to the host [Figs. 14, 15]. The USB bridge is connected to the host or upstream USB hub by a USB cable [Figs. 12-15]. USB hub is also a device for connecting other device(s) to the host, and USB hub is also connected to the host by USB cable.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teaching of Luke to be applied to USB hub because Luke's USB bridge device functions similar to the USB hub. Disconnecting the USB hub from the host when no device connected to the

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USB hub would increase the flexibility of the system by not only saving power for the system but also saving bus resources of the system used to enumerate the USB hub [col. 2, lines 19-20].

7. **Regarding claim 3**, Luke teaches that the attach/removal detection logic (circuits 96 and 102 included in USB bridge) provides a first signal when the peripheral device is not connected to the USB bridge connector [col. 5, lines 34-35, 40-41, 58-62; col. 6, lines 30-31] and a second signal when the peripheral device is connected to the USB bridge connector [col. 5, lines 33-34, 40-41, 55-58; col. 6, lines 20-21]. Luke also teaches that the system further comprising:

a connector (USB cable) coupled with the host and the USB bridge [Fig. 12]. Since the attach/removal detection logic (circuits 96 and 102) integrated in the USB bridge [Fig. 4], therefore, the connector (USB cable) also coupled with the attach/removal detection logic. Luke's connector is used for disconnecting the USB bridge from the host in response to the first signal [col. 4, lines 65-67; col. 5, lines 34-35, 40-41, 58-62; col. 6, lines 30-31] and for connecting the USB bridge with the host in response to the second signal [col. 4, lines 65-67; col. 5, lines 33-34, 40-41, 55-58; col. 6, lines 20-21].

Luke teaches the USB bridge is connected/disconnected to/from the host or the upstream USB hub at its upstream USB cable. Luke does not explicitly teach the USB hub can be connected/disconnected to/from the host as claimed.

One of ordinary skill in the art would have recognized that Luke's USB bridge device is a device for connecting other device(s) to the host [Figs. 14, 15]. The USB bridge is connected to the host or upstream USB hub by a USB cable [Figs. 12-15]. USB hub is also a device for connecting other device(s) to the host, and USB hub is also connected to the host by USB cable.

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Therefore, it would have been obvious to one of ordinary skill in the art to modify the teaching of Luke to be applied to USB hub because Luke's USB bridge device functions similar to the USB hub. Disconnecting the USB hub from the host when no device connected to the USB hub would increase the flexibility of the system by not only saving power for the system but also saving bus recourses of the system used to enumerate the USB hub [col. 2, lines 19-20].

8. **Regarding claims 7-10**, since they recite method of operating of the apparatus defined in the apparatus claims, they are rejected accordingly based on the rejection of the apparatus claims.

9. Claims 4, 5, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luke et al. [Luke] (U.S. Patent No. 6,279,060) in view of Kubo et al. [Kubo] (U.S. Patent No. 6,671,814).

10. **Regarding claim 4**, Luke teaches that the system further includes a power supply coupled with the USB bridge [the power supply, not shown, included in the host computer in the case the USB bridge is a bus-powered device or the power supply 144 of Fig. 13 in the case the USB bridge is a self-powered device]. Luke does not explicitly teach the attach/removal detection logic disconnects the USB bridge from the power supply if the peripheral device is not connected to the USB bridge connector.

Kubo teaches a system including a switch (switch 3) for electrically disconnecting the power provided to a USB device when the device is not used [abstract; col. 1, lines 57-61; col. 4, lines 19-24] and electrically connecting the power provided to the USB device when the device is operated [col. 4, lines 11-18].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Luke and Kubo because they both teach system for logically connecting/disconnecting a USB device to/from a host computer. Kubo's teaching of a switch for electrically connecting/disconnecting power provided to the USB device would reduce the power consumption of the system by allowing Luke's attach/removal detection logic includes a switch for connecting/disconnecting the USB hub to/from the power supply when no device connected to the hub.

11. **Regarding claim 5**, Luke teaches that the attach/removal detection logic (circuits 96 and 102 included in USB bridge) provides a first signal when the peripheral device is not connected to the USB bridge connector [col. 5, lines 34-35, 40-41, 58-62; col. 6, lines 30-31] and a second signal when the peripheral device is connected to the USB bridge connector [col. 5, lines 33-34, 40-41, 55-58; col. 6, lines 20-21]. Luke also teaches that the system further comprising:

a connector (USB cable) coupled with the power supply (the power supply, not shown, included in the host computer in the case the USB bridge is a bus-powered device) and the USB bridge [Fig. 12]. Since the attach/removal detection logic (circuits 96 and 102) integrated in the USB bridge [Fig. 4], therefore, the connector (USB cable) also coupled with the attach/removal detection logic. Luke's connector is used for disconnecting the USB bridge from the host in response to the first signal [col. 4, lines 65-67; col. 5, lines 34-35, 40-41, 58-62; col. 6, lines 30-31] and for connecting the USB bridge with the host in response to the second signal [col. 4, lines 65-67; col. 5, lines 33-34, 40-41, 55-58; col. 6, lines 20-21].

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Luke teaches the USB bridge is connected/disconnected to/from the host or the upstream USB hub at its upstream USB cable. Luke does not explicitly teach the USB hub can be connected/disconnected to/from the power supply as claimed.

One of ordinary skill in the art would have recognized that Luke's USB bridge device is a device for connecting other device(s) to the host [Figs. 14, 15]. The USB bridge is connected to the host or upstream USB hub by a USB cable [Figs. 12-15]. USB hub is also a device for connecting other device(s) to the host, and USB hub is also connected to the host by USB cable.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teaching of Luke to be applied to USB hub because Luke's USB bridge device functions similar to the USB hub. Disconnecting the USB hub from the host when no device connected to the USB hub would increase the flexibility of the system by not only saving power for the system but also saving bus resources of the system used to enumerate the USB hub [col. 2, lines 19-20].

Kubo teaches a system including a switch (switch 3) for electrically disconnecting the power provided to a USB device when the device is not used [abstract; col. 1, lines 57-61; col. 4, lines 19-24] and electrically connecting the power provided to the USB device when the device is operated [col. 4, lines 11-18].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Luke and Kubo because they both teach system for logically connecting/disconnecting a USB device to/from a host computer. Kubo's teaching of a switch for electrically connecting/disconnecting power provided to the USB device would reduce the power consumption of the system by allowing Luke's attach/removal detection logic includes

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a switch for connecting/disconnecting the USB hub to/from the power supply in response to the first and/or second signal.

12. **Regarding claims 11 and 12**, since they recite method of operating of the apparatus defined in the apparatus claims, they are rejected accordingly based on the rejection of the apparatus claims.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luke et al. [Luke] (U.S. Patent No. 6,279,060) in view of applicant's admission of prior art [AAPA].

14. **Regarding claim 6**, Luke teaches the USB device (USB bridge) can be logically disconnected and hidden from the host [abstract; col. 4, lines 65-67; col. 5, lines 9-13]. Luke does not explicitly teach the system is allowed to enter a lowest power state when the device is not connected to the USB connector.

AAPA teaches that the system cannot enter its lowest power state because the system detects the presence of a USB hub (USB hub is a USB device) [application's specification, p. 2, lines 8-14]. As such, AAPA implicitly teaches that the system will be allowed to enter its lowest power state when no USB hub (device) is detected.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Luke and AAPA because they both teach system for operating and connecting device(s) to a host through a USB hub. AAPA's teaching of allowing the host to enter its lowest power state when no USB hub and/or device detected by the host would reduce the power consumption and increase the reliability of Luke's system by

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allowing the system entering the lowest power state when USB device (USB bridge) is logically disconnected from the host.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan N. Du whose telephone number is (703) 308-6292. The examiner can normally be reached on Monday-Friday: 9:00 AM - 5:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on (703) 305-9717.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

The fax number for the organization is (703) 872-9306.



Thuan N. Du
February 19, 2004